Evaluation of Non-Ozone Depleting Substances as an Environmental Attribute for Inclusion in the Federal Logistics Information System (FLIS)

September 1, 1999

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Chapter 1: Introduction

Federal government agencies must comply with laws, Executive Orders (EOs), regulations, and policies designed to reduce waste and minimize the environmental impacts of its activities. Federal agencies can comply with the requirement to minimize the use of hazardous or toxic substances by promoting the use of recycled materials, improving energy efficiency, reducing the volume of waste for disposal, conserving natural resources, improving worker health and safety, reducing operating costs, and saving taxpayer dollars through procurement of environmentally preferable products.

To assist procurement personnel and end-users in identifying products with environmentally preferable attributes, the Joint Logistics Commanders (JLC) tasked the DLA, in February 1997, to research the feasibility of adding environmental attributes to the Federal Logistics Information System (FLIS). The FLIS, a centerpiece of the Federal acquisition process, is a large database that catalogues almost 7 million records of products and services available in the Federal supply system. All Federal agencies use the FLIS to requisition items through the General Services Administration (GSA) and Defense Logistics Agency (DLA).

The JLC asked DLA to identify environmental data currently available and possible constraints for adding environmental attributes to FLIS codes, to develop cost estimates for expanding FLIS, and to recommend a process for Federal procurement personnel to identify products that have a lesser impact on human health and the environment.

DLA conducted a business case analysis that analyzed the potential costs and benefits of using the FLIS to increase the Federal acquisition of environmentally oriented products. Exhibit 1 highlights the benefits of an expanded use of environmentally preferable products identified. As a result of the business case analysis, DLA established the Environmental Attribute Initiative and formed the Joint Group on Environmental Attributes (JG-EnvAtt) Coordinating Committee to manage the environmental attribute initiative.

Exhibit 1
Benefits of Expanded Use of Environmentally Preferable Products

- Reduced operating and disposal costs for facilities
- Reduced exposure to hazardous materials, safety hazards, and environmental violations
- Compliance with regulations and Executive Orders directing increased Federal purchasing of environmentally preferable products
- Achievement of DoD affirmative procurement goals

The JG-EnvAtt Coordinating Committee is headed by the DLA, with the U.S. Army, Navy, Air Force, Marine Corps, and GSA as the other primary stakeholders. Advisors include the Department of Energy (DOE), Environmental Protection Agency (EPA), and other Government agencies. The Committee is responsible for selecting priority attributes for evaluation, approving proposed attributes for inclusion in the FLIS, and adding the approved attribute to the FLIS.

The JG-EnvAtt Coordinating Committee developed the following three selection criteria for evaluating proposed attributes:

1. Regulatory or policy priority must exist.
2. Comprehensive definition must be available.
3. Cost benefit must be evident.

The JG-EnvAtt Coordinating Committee identified and prioritized 35 potential environmental attribute categories. Two of these attributes, "energy efficient", and "EPA Comprehensive Procurement Guidelines" have previously been analyzed, and an evaluation of their applicability for inclusion in the FLIS has been presented to the committee. Additionally, the FLIS data base has been modified and prepared to receive environmental attribute data as of September 1998. In November 1998, JG-EnvAtt Coordinating Committee tasked Litton PRC and Project Performance Corporation (PPC) to evaluate five additional categories:

1. Non-ozone depleting substances
2. Low volatile organic compounds
3. Water conserving
4. Non-greenhouse impact
5. High recyclable content

The purpose of this report is to discuss the evaluation of *non-ozone-depleting substances* as an environmental attribute for inclusion in FLIS. It discusses the evaluation approach and criteria for identifying and determining *non-ozone-depleting substances* as an environmental attribute. Then, the report highlights the underlying policy priorities, provides a standard definition, and presents associated life-cycle costs for non-ozone depleting substances. With the assistance and guidance of the JG-EnvAtt Coordinating Committee, PRC and PPC prepared this report.

Chapter 2: Evaluation Approach

Federal procurement agencies have initiated activities to encourage the procurement of environmentally preferable products. Various catalogs and guides have been developed for the procurement of environmentally preferable alternatives to conventional products, but these catalogs and guides are not linked to the FLIS. The FLIS characterizes more than 7 million items by over 240 codes, including national stock number, manufacturer, procuring agency, and price. These codes define the product's "form, fit, and function."

Incorporating positive environmental attributes in the FLIS will increase the visibility and availability of environmentally preferable products and assist procurement personnel and end-users in choosing items appropriate for their needs. The comparison of environmentally preferable products with other products may consider raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance, and/or disposal of the product or service.

The DLA defines environmentally preferable as products or services that have a "*lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose*."

Approach

This section documents the multi-step process used to evaluate *non-ozone-depleting substances* as an environmental attribute. First, PRC and PPC researched government, industrial, and international regulations, policies, and definitions to determine if a policy priority existed for the proposed attribute. The primary research sources used in this effort are shown in Exhibit 2.

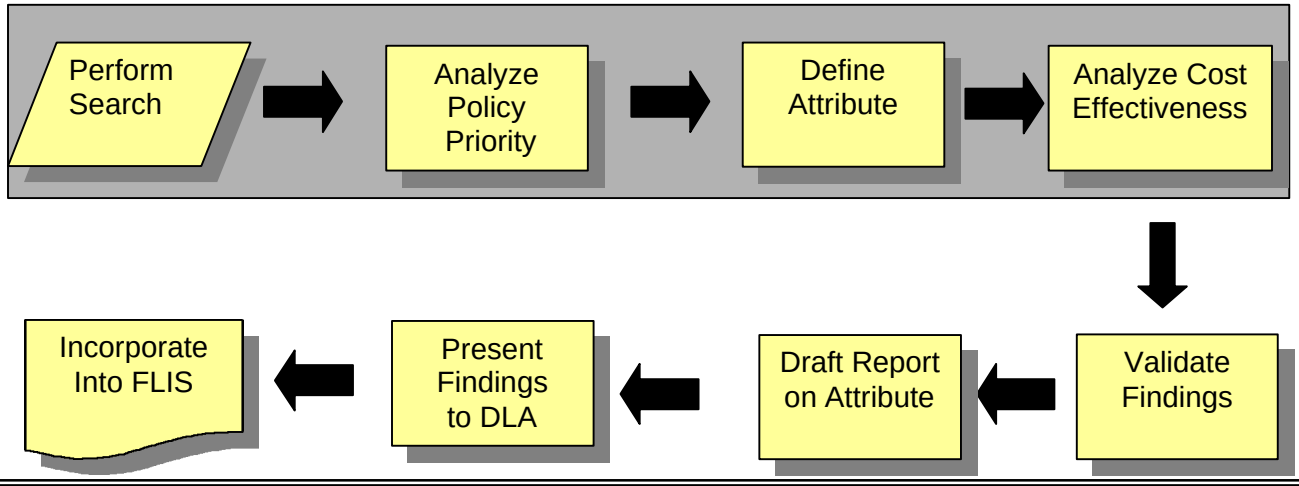
Based upon this research, a definition of the attribute was developed and validated by subject matter experts at EPA and other Federal agencies. For some potential attributes, existing definitions are vague, originate from numerous sources, and are inconsistent. To ensure that any interpretation of existing definitions was consistent with accepted definitions, the project team asked experts in the subject to validate the definitions established.

Upon validation of the established definition, additional research was conducted on the attribute's life-cycle cost impacts. The overall process used to research the selected environmental attribute is presented in Exhibit 3.

Exhibit 2
Primary Research Sources

- Laws and regulations
- Executive Orders
- DoD affirmative procurement goals
- EPA Partners for the Environment Programs
- Interest group studies
- International standards
- Regulatory impact analyses
- Government and non-government cost studies
- DLA inventory control points
- FTC guides for the use of environmental marketing claims (16 CFR Part 260)
- Green Seals--standards and criteria
- Scientific certification systems--lists of certified products and claims
- ISO 14020--Guiding Principles for Environmental Labeling Programs (Draft)

Exhibit 3 Research Approach

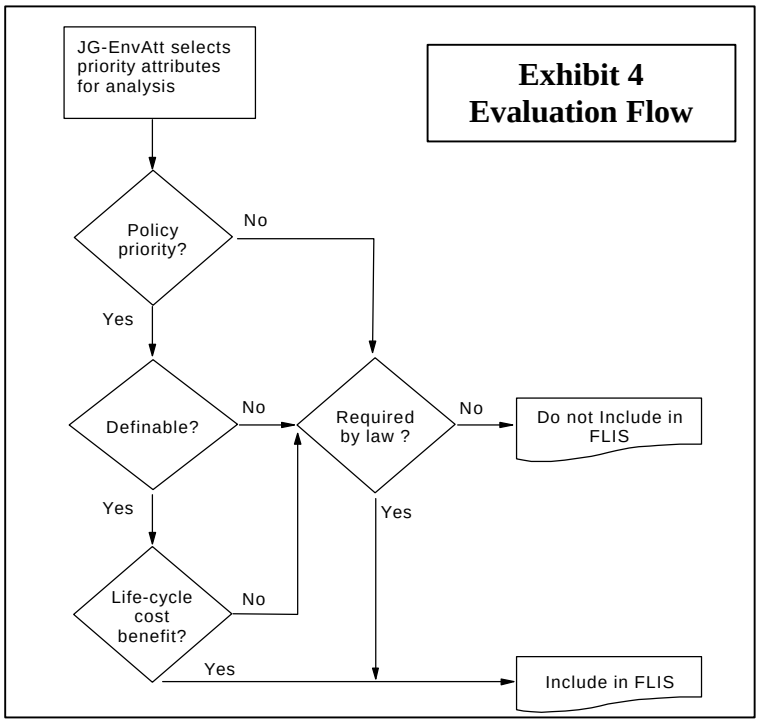


Evaluation Criteria

The process of selecting and including potential environmental attributes in FLIS involves evaluating each attribute against the following three selection criteria:

- Is it a policy priority?
- Can it be clearly defined?
- What is the life-cycle cost benefit?

Exhibit 4 shows how the criteria influence whether an attribute is incorporated into the FLIS:



Policy priority?

A potential environmental attribute must have a Federal policy priority. On the largest scale, compliance is required under Federal environmental laws, regulations, and executive orders. Additionally, Federal procurement personnel must comply with Federal Acquisition Regulations (FAR) which provide further direction concerning implementation requirements contained in regulations and EOs. Finally, departmental policies or initiatives may exist that govern affirmative procurement of environmentally oriented products. Environmental stewardship programs and green design projects may also affect procurement decisions. All of the environmental laws, regulations, policies, and initiatives indicate that environmentally preferable products and services are a priority from both the policy and a public consciousness standpoint.

Definable?

If an environmental attribute proves to be a policy priority, it must be clearly defined. The intent of adding an environmental attribute to the FLIS is to contribute to the procurement personnel's knowledge of the product and why it is preferable to a similar product without the environmental attribute. Procurement personnel must be able to identify products with these attributes from similar products available in the FLIS. The environmental attribute field must contribute clear information and distinguish between products of similar form, fit, and function. Therefore, the attribute definitions must be unambiguous and include some quantifiable characteristic.

Cost benefit?

If the environmental attribute is a policy priority and definable, it must be shown to provide a cost benefit when compared to similar products without the environmental attribute. Information concerning cost-effectiveness of an environmental attribute may be found in regulatory impact analyses and in governmental and non-governmental cost studies. In some cases, the results of the cost assessment may be overridden by the requirements of a Federal directive or agency policy. Additionally, a life-cycle cost assessment may be beneficial and/or required as a means of acquisition planning. The cost assessment tracks the costs associated with a particular product from procurement through use, handling, and disposal.[1] Often, a higher initial purchase price for environmentally oriented products is off-set by reduced costs associated with the following:

1. Material storage and handling
2. Use of energy, water, and other resources
3. Waste storage, treatment, and disposal
4. Compliance, permitting, and reporting
5. Liability for work-related injuries and environmental contamination

[1] This analysis does not evaluate the cost associated with manufacturing environmentally preferable products relative to other products. Any costs incurred prior to procurement are excluded from this evaluation.

Chapter 3: Non-Ozone Depleting Substances

Ozone is a gas molecule consisting of three oxygen atoms (O_3). There are two types of ozone: atmospheric and stratospheric. Atmospheric ozone occurs near the surface of the Earth, whereas stratospheric ozone is found between approximately 10-50 km above the Earth's surface. The environmental attribute, non-ozone depleting substances, relates to the impact of a product on stratospheric ozone.

Atmospheric ozone is generally referred to as ground-level ozone or smog. Smog is formed under certain conditions through photochemical reactions between nitrogen-oxides and carbohydrates emitted from many sources.[2] For this reaction to occur, there must be an absence of wind, atmospheric stability, and a high amount of solar radiation. Smog is called "bad" ozone because at certain concentrations it causes harmful health affects in human beings, such as, lung irritation and decreased lung function.

Stratospheric ozone is generally described as the ozone layer, and is also referred to as "good" ozone. Stratospheric ozone ($O + O_2 = O_3$) is formed when oxygen (O_2) molecules are dissociated as a result of ultraviolet B (UV-B) radiation from the Sun, and combine with individual molecules of oxygen. Ozone absorbs UV-B radiation, which can damage deoxyribonucleicacid (DNA) in living systems. When the ozone layer is depleted, the amount of UV-B radiation that reaches the earth's surface increases, resulting in an adverse affect on plants, animals, and plastic materials and impacting on the health of human beings, such as, skin cancers, cataracts, and suppression of immune systems.

Ozone molecules are destroyed by both UV-B absorption and by natural compounds containing nitrogen, hydrogen, and chlorine. Scientists generally believed that the balance in the creation and destruction of ozone was fairly constant. However, in 1985, scientists concluded that the stratospheric ozone layer was being depleted. Destruction of ozone was outpacing the creation of ozone resulting in the "Ozone Hole." Discovery of the ozone hole was the catalyst that focused global attention on ozone depleting substances (ODSs). These ODSs include chlorofluorocarbons (CFCs) and halons, which have many uses in substances, such as, aerosols, foams, refrigerants, air conditioners, solvents, and fire extinguishers.

Efforts to control production and consumption of ODSs began immediately after the conclusion by scientists that the ozone layer was being depleted. Governments of the world met at the Vienna Convention on the Protection of the ozone layer in 1985, committing themselves to ozone layer protection and scientific research toward an improved understanding of atmospheric processes.[3] In 1987, numerous governments (including the United States) agreed to the principles set forth in the Montreal Protocol on substances that deplete the ozone layer. The

[2] Including cars, trucks, factories, and household products such as paints, cleaning chemicals, and insecticides.
[3] Attending countries included: Argentina, Austria, Belarus, Belgium, Burkina Faso, Canada, Chile, Denmark, Egypt, European Community, Finland, France, Germany, Greece, Italy, Luxembourg, Mexico, Morocco, Netherlands, New Zealand, Norway, Peru, Russian Federation, Sweden, Switzerland, Ukraine, United Kingdom, and the United States of America.

ultimate aim of the Montreal Protocol is to reduce and, eventually, eliminate the emissions of amendments have been enacted by the international community, and signed by the U.S. Government, to strengthen the terms of the original agreement. The list of ODSs scheduled for phase-out was expanded and the time periods set for complete phase-out of these chemicals was reduced. Exhibit 5 summarizes the Montreal Protocol and subsequent amendments.

Exhibit 5 Summary of International Ozone Agreements

International Agreement	Summary
Montreal Protocol (1987)	Commitment to reduce/eliminate emissions of man-made ODSs. Defined Class I,Group 1 ODSs; phase-out set for 2000.
London Agreement (1990)	Detailed Class I ODSs, Groups 2-5; phase-out date of 2000 for all, except Group 5 set for 2002. Identified transitional chemicals that will become the Class II ODSs.
Copenhagen Agreement (1992)	Added Class I, Groups 6 and 7; accelerated phase-out dates range from 1993-2001. Phase-out complete for Groups 1-5 and 7 by 1995. Group 6 phase-out by 2001. Class II ODSs defined, phase-out schedule ranging from 2003 to 2030
Montreal Agreement (1997)	Applicable to the European Union; accelerated phase-out of Class I, Group 6 ODSs to 2005 from 2010.
Cairo Agreement (1998)	No significant changes relevant to the United States.

Is it a policy priority?

As a policy priority, the use of non-ozone depleting substances is substantiated by the existence of the following international agreements and U.S. laws, regulations, and policies:

- Montreal Protocol – Sets the goal of reducing and eventually eliminating the emissions of man-made ODSs.
- Clean Air Act – Defines and implements the phase-out of ODSs as described in the Montreal Protocol.
- Significant New Alternatives Policy Program – Provides names of acceptable and unacceptable substitutes for ODSs phased out in the Clean Air Act.
- Executive Order 12843 – Details procurement requirements and policies for Federal agencies regarding ODSs. It emphasizes the use of safe alternatives and non-ozone depleting substances when practicable.
- Federal Acquisition Requirements – Provide additional guidelines regarding the acquisition of items that contain, use, or are manufactured with ODSs.

Each of these initiatives and their impact on ODSs is discussed in detail in the following sections.

Montreal Protocol

The Montreal Protocol divides ODSs into two classes. Class I ODSs include any chemical with an ozone-depleting potential of 0.2 or greater, such as CFCs, halons, carbon tetrachloride, methyl chloroform, and hydrobromofluorocarbons (HBFCs). [4] Class I ODSs are further subdivided into seven groups. Class II ODSs include all hydrochlorofluorocarbons (HCFCs). See Exhibits 6 and 7 for a listing of Class I and II ODSs, respectively.

Exhibit 6 Class I Ozone Depleting Substances

Chemical Name	Acronym	CAS Number
Group I		
Trichlorofluoromethane	CFC-11	75-69-4
Dichlorodifluoromethane	CFC-12	75-71-8
1,1,1-Trichlorotrifluoroethane	CFC-113	354-58-5
1,1,2-Trichlorotrifluoroethane		76-13-1
Dichlorotetrafluoroethane	CFC-114	76-14-2
Monochloropentafluoroethane	CFC-115	76-15-3
Group II		
Bromochlorodifluoromethane	Halon 1211	353-59-3
Bromotrifluoromethane	Halon 1301	75-63-8
Dibromotetrafluoroethane	Halon 2402	124-73-2
Group III		
Chlorotrifluoromethane	CFC-13	75-72-9
Pentachlorofluoroethane	CFC-111	354-56-3
Tetrachlorodifluoroethane	CFC-112	76-12-0
Heptachlorofluoropropane	CFC-211	422-78-6
Hexachlorodifluoropropane	CFC-212	3182-26-1
Pentachlorotrifluoropropane	CFC-213	2354-06-5
Tetrachlorotetrafluoropropane	CFC-214	29255-31-0
Trichloropentafluoropropane	CFC-215	1599-41-3
Dichlorohexafluoropropane	CFC-216	661-97-2
Chloroheptafluoropropane	CFC-217	422-86-6
Group IV		
Carbon tetrachloride	CC-14	56-23-5
Group V		
1,1,1-trichloroethane	Methyl Chloroform	71-55-6
Group VI		
Methyl bromide	CH3Br	74-83-9
Group VII		
Hydrobromofluorocarbons	HBFCs	

[4] The ozone depletion potential (ODP) is a measure of the relative ability of a molecule of a particular chemical to destroy ozone molecules in the stratosphere, using CFC-11 and CFC-12 as the standard unit. The ODP is determined by the number of chlorine or bromine atoms in the molecule, its atmospheric lifetime, and the specific mechanisms involved in breaking it down.

Exhibit 7 Class II Ozone Depleting Substances

Chemical Name	Acronym	CAS Number
Hydrochlorofluorocarbon-21	HCFC-21	
Chlorodifluoromethane	HCFC-22	75-45-6
Hydrochlorofluorocarbon-31	HCFC-31	
Hydrochlorofluorocarbon-121	HCFC-121	
Hydrochlorofluorocarbon-122	HCFC-122	
2,2-dichloro-1,1,1-trifluoroethane	HCFC-123	306-83-2
2-chloro-1,1,1,2-tetrafluoroethane	HCFC-124	2837-89-0
Hydrochlorofluorocarbon-131	HCFC-131	
Hydrochlorofluorocarbon-132	HCFC-132	
Hydrochlorofluorocarbon-133	HCFC-133	
1,1-dichloro-1-fluoroethane	HCFC-141b	1717-00-6
1-chloro-1,1-difluoroethane	HCFC-142b	75-68-3
Hydrochlorofluorocarbon-221	HCFC-221	
Hydrochlorofluorocarbon-222	HCFC-222	
Hydrochlorofluorocarbon-223	HCFC-223	
Hydrochlorofluorocarbon-224	HCFC-224	
Hydrochlorofluorocarbon-225	HCFC-225	
Hydrochlorofluorocarbon-226	HCFC-226	
Hydrochlorofluorocarbon-231	HCFC-231	
Hydrochlorofluorocarbon-232	HCFC-232	
Hydrochlorofluorocarbon-233	HCFC-233	
Hydrochlorofluorocarbon-234	HCFC-234	
Hydrochlorofluorocarbon-235	HCFC-235	
Hydrochlorofluorocarbon-241	HCFC-241	
Hydrochlorofluorocarbon-242	HCFC-242	
Hydrochlorofluorocarbon-243	HCFC-243	
Hydrochlorofluorocarbon-244	HCFC-244	
Hydrochlorofluorocarbon-251	HCFC-251	
Hydrochlorofluorocarbon-252	HCFC-252	
Hydrochlorofluorocarbon-253	HCFC-253	
Hydrochlorofluorocarbon-261	HCFC-261	
Hydrochlorofluorocarbon-262	HCFC-262	
Hydrochlorofluorocarbon-271	HCFC-271	

Clean Air Act

The Clean Air Act (CAA), enacted in 1970, is the comprehensive Federal law that regulates air emissions from area, stationary, and mobile sources. Designed to implement the U.S Government's commitments under the Montreal Protocol, the 1990 amendment to the Clean Air Act addressed issues such as acid rain, ground-level ozone, stratospheric ozone depletion, and air toxins. In this amendment, EPA established allowances or permits to limit the production and consumption of chemicals known to deplete the stratospheric ozone layer as follows:

- Defining Class I and Class II ODSs in accordance with the Montreal Protocol
- Setting achievement of a total phase-out of Class I ODSs by 2001, in accordance with the Montreal Protocol[5]

[5] The Copenhagen Agreement stipulated an accelerated phase-out of CFCs, carbon tetrachloride, methyl chloroform, and HBFCs by the end of 1995; halons by the end of 1993; and methyl bromide by the end of 2001.

- Identifying a certain percentage of progress towards the total phase-out of Class II ODSs by the year 2030
- Requiring each Federal department, agency, and instrumentality of the United States to conform its procurement regulations to the policies and requirements under the Act

Exhibit 8 shows the U.S. schedule, as established in the CAA, for phase-out of Class II ODSs.

Exhibit 8 Accelerated Phase-Out Schedule for Class II ODSs

Year Implemented	Phase-Out Schedule
2003	No production or importing of HCFC-141b
2010	No production or importing of HCFC-142b and HCFC-22, except for use in equipment manufactured before 1/1/2010 (i.e., no production or importing for NEW equipment that uses these refrigerants)
2015	No production or importing of any HCFCs, except for use as refrigerants in equipment manufactured before 1/1/2020
2020	No production or importing of HCFC-142b and HCFC-22
2030	No production or importing of any HCFCs

Significant New Alternatives Policy (SNAP) Program

The EPA instituted the SNAP Program on March 18, 1994, to ensure that ODSs are replaced with alternatives that are considered "safe" for human health and the environment. The SNAP program goals state that, "to the maximum extent practicable, class I and class II substances shall be replaced by chemicals, product substitutes, or alternative manufacturing processes that reduce overall risks to human health and the environment." The program establishes a process for continuing review of substitutes for ODSs and determines their acceptability. Lists of acceptable and unacceptable alternatives are provided for nine industrial sectors and are updated several times each year. Additionally, the SNAP Program provides a petition process for adding and deleting substances from published lists.

Substitute chemicals are reviewed based on the potential for ozone-depletion, global warming, toxicity, flammability, and exposure. The SNAP program chooses a particular substitute based on its end-use (processes or classes of specific applications, i.e. automobile air conditioners) within the following sector:

- Refrigeration and air conditioning
- Foam blowing
- Cleaning solvent
- Fire suppression and explosion protection

- Aerosols
- Sterilants
- Adhesives, coatings, and inks
- Tobacco expansion
- Pesticides

For example, within the refrigeration and air conditioning sector, HFC-134a is acceptable as a substitute for CFC-12 in new and retrofitted household refrigerators. Substitutes are classified in three categories: acceptable, acceptable subject to narrow use limits, or acceptable subject to use conditions. Appendix C provides a list of acceptable as well as unacceptable ODS substitutes for each of the nine industry sectors.

Executive Order 12843

This Executive Order requires Federal agencies to conform to the procurement practices outlined in the CAA. Specifically, the executive order mandates Federal agencies to maximize the use of safe alternatives to ODSs, revise procurement practices, implement cost-effective programs, and modify contracts that require the use of ODSs to include substitutes to ODSs when practicable.

Federal Acquisition Requirements

The Federal Acquisition Requirements detail policies and procedures for the acquisition of items that contain, use, or are manufactured with ODSs. Emphasis is placed on the use of safe alternatives to ODSs. These requirements are promulgated in 40 CFR Part 82, Subpart D.

Can it be clearly defined?

An ozone-depleting substance or ODS is defined in Federal regulations as:

> Any substance designated as Class I or Class II by EPA, including but not limited to chlorofluorocarbons, halons, carbon tetrachloride, methyl chloroform, or hydrochlorofluorocarbons (40 CFR Part 82).

Based on this definition, a general, unambiguous definition of a non-ozone depleting substance was developed for use as an environmental attribute in the FLIS as follows:

> *Any substance that is not made with and/or does not contain any Class I ODSs as defined in the Clean Air Act Amendment; meets or exceeds the Class II phase-out; and does not contain any alternatives listed as "unacceptable" under SNAP throughout the life cycle of the product.*

The definition of the attribute, non-ozone depleting substance, will affect several types of products currently available through the FLIS product catalog. Of the nine industry categories defined by EPA as containing ODSs, seven industries had products currently purchased through FLIS. The use of the non-ozone depleting substances environmental attribute in the FLIS, combined with the SNAP lists provided in Appendix A, will simplify the choices that Federal

procurement personnel must make in day-to-day operations. Exhibit 9 identifies typical products that may contain ozone-depleting substances and are currently purchased through FLIS.

Exhibit 9 Products Purchased Through FLIS That May Contain ODSs

SNAP Sector	FSC Number	Description	Inventory Control Point
Refrigeration and Air Conditioning	1660	-Aircraft air conditioning, heat and pressurizing equipment	Richmond
	4110, 4120, 4130	-Refrigeration and air conditioning equipment and components	Defense Industrial
Foam Blowing	5640	-Thermal insulation materials	GSA-General Products Commodity
Solvent Cleaning	3510	-Laundry and dry cleaning equipment	Defense Industrial
	4920, 4925, 4927	-Aircraft, ammo, rocket maintenance and rep shop specialized equipment	Richmond
	4935	-Guided missile maintenance rep and checkout specialized equipment	Columbus
	6810	-Chemicals	Richmond
	6850	-Miscellaneous chemical specialties	Richmond
	7930	-Cleaning and polishing compounds and prep	GSA-General Products Commodity
Fire Suppression and Explosion Protection	1250	Fire control stabilizing mechanisms	Columbus
	4210	Fire fighting equipment	Defense Industrial
Aerosols	Not applicable		
Sterilants	6515	-Medical supplies	Philadelphia
Adhesives, Coatings and Inks	8010	-Paints, varnishes and related products	GSA-Tools and Appliances Acquisition
	8030	-Preservative and sealing compounds	
	8040	-Adhesives	
	6820	-Dyes	Richmond
Tobacco Expansion	Not applicable		
Pesticides	6840	-Pest control agents and disinfectants	Richmond

Life-Cycle Cost Assessment

As stated in EPA's Final Federal Procurement Rule on the Protection of Stratospheric Ozone, the EPA determined that the regulation does not meet the definition of a major rule, and a regulatory impact analysis was not required. The rule was determined not to have a significant economic impact because it met one or more of the following criteria:

- It did not have an annual effect on the economy of $100 million or more.
- There was not a major increase in costs or prices for consumers, individual industries, Federal or State government agencies, or geographic regions.

- There were not significant adverse effects on competition, employment, investment, productivity, innovation, or on the ability of United States-based enterprises to compete with foreign-based enterprises in domestic or export markets.

Additionally, a regulatory flexibility analysis was deemed unnecessary. The EPA believed that most companies in industries supplying goods and services made with or containing ODSs to the Federal government were already aware of the regulations of Title VI. As a result, the suppliers were prepared to offer alternatives to meet amended or new Federal procurement specifications required by this regulation.

Regulations concerning ODSs and the protection of atmospheric ozone apply to all producers and consumers. Procurement requirements for Federal acquisition of commodities made with or containing ODSs simply reinforce the regulations that apply across the board. Consequently, an assessment of life cycle cost savings for commodities that contain non-ozone depleting substances or alternatives under SNAP is not necessary.
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Chapter 4. Summary and Conclusions

The JG-EnvAtt Coordinating Committee's approach for adding environmental attributes to the FLIS is to identify and evaluate potential environmental attributes based on their policy priority, definability, and life-cycle cost savings. This approach was used to evaluate the environmental attribute, non-ozone depleting substances.

Use of non-ozone depleting substances as an environmental attribute is strongly supported by Federal policies, including the Clean Air Act, the Significant New Alternatives Policy Program, the Executive Order 12843, and the Federal Acquisition Regulations. The definition of non-ozone depleting substances provided in this report is derived from the definitions of both Class I and Class II ODSs. Additionally, the non-ozone depleting substances definition includes a general reference regarding compliance with mandated phase-out schedules. A general, unambiguous definition of a non-ozone depleting substance for use as an environmental attribute in the FLIS is as follows:

> *Any substance that is not made with and/or does not contain any Class I ODSs as defined in the Clean Air Act Amendment; meets or exceeds the Class II phase-out; and does not contain any alternatives listed as "unacceptable" under SNAP throughout the life cycle of the product.*

Although there are no specific life-cycle cost estimates comparing costs of products with ODSs to those with non-ozone depleting substances (i.e. SNAPS), regulations regarding ODSs apply to all sectors of the United States, not only Federal acquisition. Therefore, cost analyses have not been conducted.

Based on the research conducted and presented in this report, non-ozone depleting substances meet the evaluation criteria established by JG-EnvAtt Coordinating Committee as an environmental attribute that should be included in the FLIS system. PRC and PPC recommend that the Committee include non-ozone depleting substances as an environmental attribute in FLIS.

Appendix A: ODS Substitutes Under the Significant New Alternatives Policy

Appendix B: Acronyms

CAA	Clean Air Act
CFCs	chlorofluorocarbons
CFR	Code of Federal Regulations
DISC	Defense Industrial Supply Center
DLA	Defense Logistics Agency
DOE	Department of Energy
EO	Executive Order
EPA	Environmental Protection Agency
FAR	Federal Acquisition Requirements
FLIS	Federal Logistics Information System
GSA	General Services Administration
HBFCs	hydrobromofluorocarbons
HCFC	hydrochlorofluorocarbons
HFC	hydrofluorocarbon
JG-EnvAtt	Joint Group on Environmental Attributes
JLC	Joint Logistics Commanders
LCC	life-cycle cost
ODP	ozone depletion potential
ODSs	ozone depleting substances
RFA	regulatory flexibility analysis
SNAP	Significant New Alternatives Policy
UV-B	Ultraviolet B Radiation
VOC	volatile organic compound

Appendix C: References

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